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A

DECADE

OF

CURIOUS INSECTS:

SOME OF THEM NOT DESCRIB'D BEFORE:

SHEWN IN

THEIR NATURAL SIZE;

AND AS THEY APPEAR ENLARG'D BEFORE

THE LUCERNAL MICROSCOPE;

In which the SOLAR APPARATUS is artificially illuminated.

With their HISTORY, CHARACTERS, MANNERS, and PLACES of ABODE;

On TEN QUARTO PLATES, and their Explanations.

DRAWN AND ENGRAVED FROM NATURE.

By J. HILL, M. D.

MEMBER OF THE IMPERIAL ACADEMY.

LONDON:

Printed for the AUTHOR, in St. James's-Street.

And Sold by B. WHITE, in Fleet-Street; P. ELMSLY, in the Strand; PARKER, in Cornhill; BALDWIN, in Pater-noſter-Row; RIDLEY, St. James's Street; and J. BALFOUR, at Edinburgh.

MDCC.LXXIII.

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Ladies who may chuſe to paint theſe Inſects themſelves may have Sets of the Cuts on Royal Paper printed pale for that purpoſe.

INSECTS,

ENGRAVED FROM NATURE.

CLASS I.

THOSE WHICH HAVE FOUR GAUZY WINGS, AND A WEAPON IN THE TAIL.

BY Gauzy Wings, we underſtand ſuch as are thin, tender, and tranſparent: not cruſty, as the Beetles; nor leathery, as the Crickets; nor duſty, as the Moths and Butterflies; but *clear*. Such are the wings of common Flies.

GENUS I.

SAW-FLY.

TENTHREDO.

Character of the Genus.

The MOUTH is form'd of Jaws; and has no Trunk.

The SCUTCHEON, has two ſmall, diſtant, elevated points, on its hinder part.

The WINGS lie plain; but are a little puff'd up, and uneven.

The WEAPON at the tail is ſhort; and form'd of two plates, jagged like a Saw; and hollow'd lengthwiſe in the Female. Plain in the Male. Plate 1. *a b c d.*

All two-wing'd Flies have a pair of Plummets behind their Wings; riſing from under a bloated Scale. Thoſe ſwellings in the Saw-Fly ſeem to be ſuch Scales not open'd; and never diſcloſing any Plummets.

Nature does all things regularly; and makes her advances by equal and gradual degrees: and this ſeems her gradation from the two-wing'd to the four-wing'd Claſſes of Inſects; the firſt in which the Plummets ceaſe.

We ſhall find throughout her univerſal regions, that creatures differ by equidiſtant ſteps from one another; and that this difference, this advance of Species above Species, is all her laws allow. All real knowledge of her works is, and for ever will be, confined to this; the knowing and eſtabliſhing the differences of one Species from another: Claſſes, and Genera, tho' uſeful, are arbitrary; ideas of mens minds; that exiſt not in nature.

To know theſe characters of difference, is all: but the parts which mark them; the greater, as well as the leſſer; are ſo imperfectly ſeen in the ſmaller Inſects, that their names, or kinds, often cannot be known; nor does the mind perceive the wonders of the Creator diſplay'd in theſe his creatures. 'Tis therefore they are here repreſented both in their natural ſize; and as they appear before a ſmall, but diſtinct magnifying power: and that way only they can be either well known, or juſtly admir'd.

I. MOURN-

I.

MOURNING SAW-FLY.

TENTHREDO LUCTUOSA.

Plate 1.

Character of the Species.

The ANTLERS have ſeven joints, and are all the way of a thickneſs.

The HEAD and Trunk are red; the Body is black.

Plate 1. *a*.

This pretty, quiet, melancholy Fly is found among Alder Plantations; and is often fatally entangled in the clammy juice, that oozes from their Leaves. I caught it this laſt May, by the road-ſide, near Uxbridge.

Its HEAD is of the fineſt ſcarlet.
The *Eyes* are blue.
The *Antlers* are of a duſky brown, and hairy.
The *Feelers* ſhort, and pale.
The *Mouth* is arm'd with hard and cruſty jaws.

Its TRUNK is ſcarlet above, and of a ruddy brown below.
The *Scutcheon* is of a deeper red.
The *Points* on it are blue.

The BODY is coal-black above, and greyiſh black below.
Its *Rings* are divided by lines, form'd of a deep brown membrane joining them.
Its *Air-holes* are of a dead brown.

The LEGS are grey; they are all of a length, and have two claws.

The WINGS are of a pale yellowiſh brown, with little yellow riſings on the ribs, and an edge of deeper yellow.

The TAIL is of a deep brown.

The

The STING or Saw which terminates it, is flatted, and thin, and of a cheſnut brown; ſaw'd in the Female, plain in the Male. On preſſing the body of the Fly between the fingers, it may be forc'd out farther, a little from the vent.

This is the *Tenthredo-Alni*, of the Syſtema Naturæ of Linnæus. Perhaps alſo, it is the Tenthredo Ovata of the ſame work; for Inſects are not ſo numerous, as 'tis the cuſtom now to think them: and colour, tho' an obvious, is no certain character among theſe creatures: in ſome it differs with the ſeaſon; in others, with the ſex; in all, it glows according to the creature's health and vigour: in moſt, it is exalted in the time of courtſhip, as the feathers on the necks of ſome Fowls; and in ſome, it fades, and is loſt utterly in dying, as the colours of many fiſhes.

This pretty Fly riſes from a yellow Worm with a black head, and twenty little feet; frequent in ſummer on the Alders, and bury'd under ground all winter for its change: in May we ſee it perfect.

'Twere well if we knew all the Inſects, as this is known; but 'tis only a ſmall part that have been trac'd ſo thoroughly; where they have, it makes a great addition to their hiſtory: but where the eye has not diſtinctly ſeen it, 'tis beſt to be ſilent. They who relate their errors and conjectures, under the ſeeming face of knowledge, deceive, and are deceiv'd.

Tenthredo

Mourning Saw-fly

Tenthredo luctuosa

II.

MOTTLED SAW-FLY.

TENTHREDO VARIEGATA.

Plate 2.

The ANTLERS have more than twenty joints; and grow ſmall to the point.

The HEAD is blue; the Trunk is deep grey, mottled with yellow; the BODY is black.

Plate 2

This is a very ſtrange and delicate Fly: 'tis found in damp woods and moors in Auguſt and September.

The HEAD is of a ſhining blue.
The *Eyes* are green.
The *Antlers* are amber-colour'd.
The *Feelers* ſhort, and brown.
And the *Jaws* of a yellow brown.

The TRUNK is of an iron-grey, mottled with irregular ſpots of gold, like the womens tambour-work in embroidery.
The *Scutcheon* is entirely raven-grey.
The *Points* on it are black.

The BODY is coal-black above, and raven-grey below.
The *Lines* dividing the rings are browniſh.
The *Air-holes* are black.

The LEGS are of a fine bright yellow, with black claws.

The WINGS are brown, with a duſky edge.

The TAIL is amber-colour'd.

I received

I received this pretty creature by an accident from Scotland: the Duke of Athol found, this Autumn, in an oak-wood near Dunkeld, a Whortleberry-Shrub with white fruit: a thing not known before in Britain. His Grace did me the honour to ſend me ſome growing Plants of this ſmall Shrub, for the garden of her Royal Highneſs the Princeſs Dowager of Wales at Kew; and upon one of them came ſeveral of theſe Flies wrap'd up alive.

It ſeems the Tenthredo Sylvatica of the Syſtema Naturæ of Linnæus.

The Fly is Female, that is here deſcrib'd; the Male has no Saw, for he has no uſe for it. Nature has given that inſtrument to the Female, to cut a way into a growing Vegetable; and there to lodge the eggs: which paſs through the hollow made by the two ſides or plates of the Saw.

The Male has in the ſame place, a kind of Forceps, or Pincers, which he can thruſt out, and with them ſeize the Female. Thus in larger animals, where the Female has teats for ſuck, the Male has a reſemblance of them for conformity.

When the Female lays her eggs, there goes with them an acid mucilaginous juice, which perverts the courſe of the Sap in the Plant, and makes it grow into a kind of gall: this operates as ſoon as it is iſſu'd, and cicatrizes the part the Saw had wounded.

One may ſee bubbles of this juice always left upon the Plant; it is ſoft and clammy: the wound is oblong, and crooked, and the part becomes black as if burnt: the egg increaſes in bigneſs to twice or more than that, after it is lodg'd in the Plant; nor is this ſtrange ſince it has no hard covering.

Tenthredo
2

Mottled Saw-fly

Tenthredo Variegata

GENUS II.

THE SAVAGE.

SPHEX.

Plate 3.

Character of the Genus.

The MOUTH is form'd of oblong Jaws, without Trunk, or Tongue.

The WINGS lie ſmooth, and perfectly even.

The ANTLERS have ten joints.

The WEAPON at the tail is ſimple, ſharp, and hollow; and does not appear, except the Body be preſs'd; or the creature ſtrikes with it.

Nothing can be ſo provident as this creature for its young; nor any thing ſo ſavage, as the means it uſes for that purpoſe. The manner of living is different in the various Species; and ſo is the general form of the Body: the preſent and ſucceeding figure will ſhew this difference of ſhape: yet all the while the Genus is, and muſt be allowed the ſame, becauſe the Characters in all the diſtinctive parts agree. And in the ſame manner, tho' the place of ſhelter, and the courſe of life, be utterly different; yet the ſame manners appear innate, and inherent in both.

They agree in being the fierceſt of all Flys; they will attack Inſects much larger than themſelves; and this, whether they be defenceleſs, or arm'd, as they are, with a Sting. The Strength in all this ſavage kind is great; their Jaws are hard, and ſharp; and in their Sting is a poiſon, ſuddenly fatal to the creatures with whom they engage. The Savage ſeizes hardily on the creature he attacks: and gives a ſtroke of an amazing force; and then falls off, as if himſelf were kill'd: but 'tis to reſt from his fatigue, and to enjoy his victory. He keeps a ſteady eye on the creature he has ſtruck, 'till it dies, which is in a few minutes; and then drags it to the neſt, for the young. The number of other Inſects theſe deſtroy, is ſcarce to be conceiv'd; the mouth of their cave is like a Giant's of old in romance; ſtrew'd with the remains of prey: the Eyes, the Filament that ſerves as Brain, and a ſmall part of the contents of the Body, are all the Savage eats: and he will kill fifty for a meal.

1. COMBFOOTED SAVAGE.
SPHEX PECTINIPES.

Plate 3.

Character of the Species.

The ANTLERS are form'd of oval Joints, and turn like rams-horns.

The FORE-FEET are form'd like combs, with three claws, and ſtiff hairs above.

The BODY is join'd cloſe to the Trunk. Plate 3. *a b.*

This ſtrong and fierce, tho' heavy Fly, lives in caverns of the earth, in the ſides of hills and cliffs; and in holes made in the mud-walls of our little villages. I received this from the North of Ireland, where the mud-walls of one of the cabins on the ſide of a hill, was wrought into the appearance of a Honeycomb, by the multitudes of theſe creatures.

Its HEAD is of a cheſnut brown.
The *Eyes* are blue.
The *Antlers* are brown; but the tip of each joint is ruddy.
The *Jaws* are amber-colour'd.
The *Feelers* pale brown.

The TRUNK is black, and rough.
The *Scutcheon* is grey.

The BODY is ſmooth, and ſhining; of a ruſty iron colour, with bands of an orange yellow.
The *Air-holes* are brown.

The LEGS are of a blue grey; and the long hairs upon the fore ones, toward the feet, are yellowiſh.

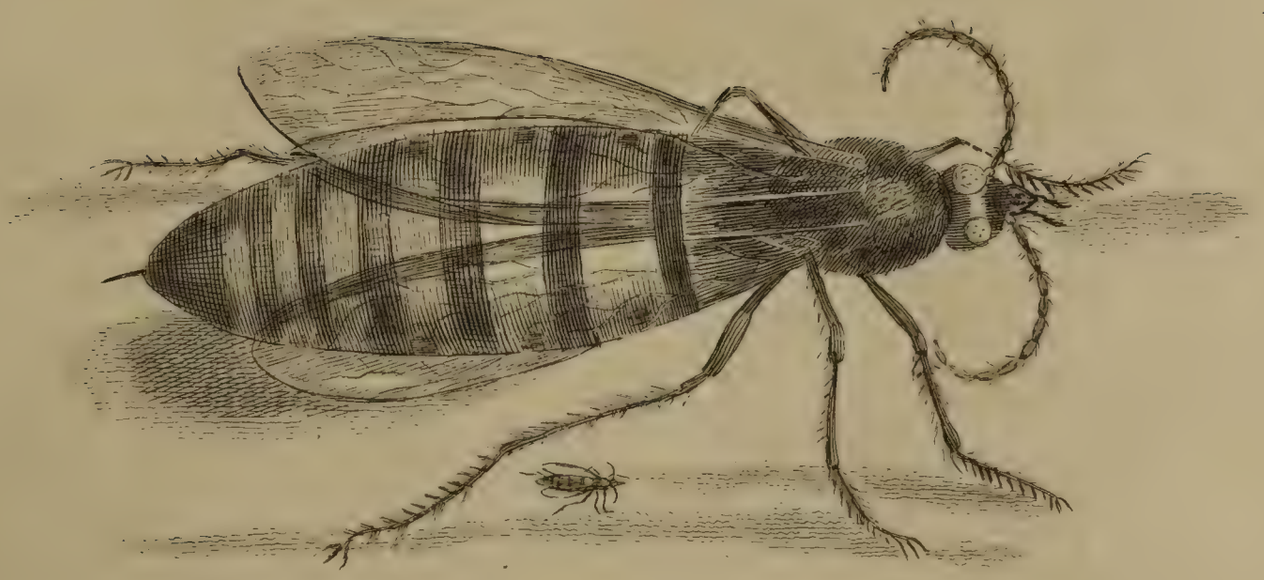
The WINGS are of a pale brown.

The STING, when the creature pleaſes to ſhew it, is of a fine poliſh'd brown.

This ſeems unqueſtionably the Sphex Pectinipes of the Syſtema Naturæ.

It is drawn here, as ſhewn by the fourth glaſs of the lucernal microſcope; not magnify'd in any vaſt degree; but ſufficiently to ſhew all its parts. Creatures much ſmaller require often larger figures to expreſs their organs diſtinctly. All magnitude is comparative; and to be uſeful, the inſtrument ſhould be employ'd with juſt ſo much power as is needful for diſtinctneſs.

Sphex



Comb footed Savage . Sphex Pectinipes

2. THE TURNER SAVAGE.

SPHEX SPIRIFEX.

Plate 4.

Character of the Species.

The BODY is join'd to the trunk by a long ſmall thread.

The ANTLERS have ten joints; and they ſpread out, and grow ſmall to the point.

The FEET are jointed, and equally hairy; and have each two toes.

This ſtrange disjointed creature, as it ſeems, lives, by choice, among men, whom it never offends; but it is beyond meaſure terrible to the leſſer inſects: and by the fabricature of its dwelling, it might become an object of ſurpriſe and wonder; tho' there were nothing more to recommend it to our notice.

I received this particular Fly from Peterborough in Northamptonſhire, where it had form'd its cells in the mud-wall of a ſmall cottage, juſt under the edge of the thatch; dry, warm, and ſhelter'd from the weather.

The preceding kind lives in a mere cave of its own making; a ſimple, oval hole, with a ſmall opening, and larger within: this had turn'd its dwelling in a cloſe ſpiral form, and poliſh'd the inſide ſo well, that it had the aſpect of one of the ſpiral ſhells we ſee in cabinets, when ſaw'd open: about the mouth of this, was form'd a kind of funnel, covered with legs and wings of ſlaughter'd Inſects; and juſt within this mouth uſually ſat the inhabitant watching what came by; for the ſtrange ſtructure of his body made him leſs fond of flying far; leſt half of it ſhould be left behind him.

Beſide the aſtoniſhing havock of this creature among the Inſects, on which it preys, there is a part of its hiſtory ſtrangely replete with horror: it has been obſerved, that while the Savages are ſo deſtructive of other creatures, they have a wonderful attention to their young; and this, by a courſe of Providence unknown to us, any more than by the term inſtinct, appears in all their actions, even before thoſe young are born.

In the preceding kind, the eggs are laid in the back part of the cavern where the creature lives; evenly arrang'd; and when the time of their hatching is near, the Fly brings in a number of ſlaughter'd Inſects, for the food of the expected young ones: ſhe then cloſes up the mouth of the hole with mud, and her care is over. When the young worms hatch, they find their food ready; and when they have eaten their fill, they reſt, and take their change into the Fly.

But this creature lays her eggs in the body of a living Caterpillar: they hatch, and eat that creature up, even while itſelf is feeding: at their appointed time they hatch: and 'twas long a wonder among the curious, how a Caterpillar produced this Fly, inſtead of a Butterfly, or Moth; or how one Inſect chang'd to many.

The HEAD of this creature is of a cheſnut brown, with a ſhade of blue.
The *Eyes* are black, and large.
The *Antlers* are of a ruddy brown.
The *Feelers* are blackiſh.
The *Jaws* are hard, ſerrated, and yellow.

The TRUNK is of a ruddy brown.
The *Scutcheon* is yellow.
The *Thread* which faſtens the two parts together, is alſo yellow.

The BODY is of the colour of ruſty iron; but there is a ſkin of yellow covering part of it from the end of the thread.
The *Air-holes* are black.

The LEGS are partly brown, and partly yellow.

The WINGS are of a duſky brown.

The STING is yellow.

The drawing of this, as of the former, is not greatly magnify'd; the ſame fourth glaſs was us'd to it; the creature being naturally of a ſize nearly big enough to ſhew its own particularities; and always here the leſs magnifying is wanted, the leſs is us'd.

GENUS

Sphex
2

Sphex Spinifex

The Turner Savage

GENUS III.

ANT-EATER.

MYRMELEON.

Character of the Genus.

The MOUTH is form'd of Jaws, with two long Tuſks.
The ANTLERS are club faſhion'd; and there are four long Feelers.
The WINGS hang down.
The TAIL is arm'd with a pair of Knippers, in the Male.

1. THE GREY ANT-EATER.

MYRMELEO FORMICARUM.

Plate 5.

In many of the wing'd Inſects, their prior form of the Worm, or Reptile, riſing immediately from the egg, demands a ſhare of our attention, with the Inſect in its more perfect and more beautiful appearance; in the preſent kind, our greateſt admiration is demanded in that leſs perfect ſtate. The Butterflies ariſe from Caterpillars; the Beetles from ſix-footed Worms; and the Dragon-flies from Inſects without Wings, which ſwim about in water. The creature under conſideration here, approaches to the Dragon Fly in kind; and in its figure, in the Reptile State; being a broad and bloated hexapode; but inhabiting the dryeſt earth.

It is known that birds and beaſts of prey can endure great and long-continued hunger; the fierceſt moſt. This creature, ally'd to the Savages in its manners, can alſo bear their abſtinence: La Hire, of the Paris Academy, obſerv'd about fourſcore years ago, that the creature could bear a ſeven months faſt; 'twas to him we owe the firſt notice of this Inſect; ſo well deſcribed ſoon after by Valliſnieri, and Poupart; and ſo much ſpoken of, and ſo poorly underſtood, by the petty retailers of natural knowledge ſince.

The Reptile State of this pretty Fly, known by the name Formicaleo, is a coarſe Inſect, of a pale yellow, ſtreak'd with brown, and varied with ſome black tufts of hairs; but uſually it is ſo covered with dirt, that it looks brown: its habitation is under ground; it forms a pit, like a funnel, of dry duſt, and lies conceal'd in the centre of it, to catch the Ants, or other little creatures, that fall into it.

Its Head is broad, and flat, and has a pair of Tuſks, or Horns; or, by whatever name we may call parts unknown to larger animals; theſe

are

are ſharp, open, and hollow: with theſe he pierces the bodies of Inſects; with theſe he draws in their juices for his food; and when that is done, they have an elaſtic force, by which they throw the carcaſe far away. He retires under ground to feed, and juſt riſes to throw the refuſe out of his pit; then repairs its injuries, and waits for the next chance. Theſe pits are about three inches wide; the creature leaves them, and makes new ones at his pleaſure: and in this ſtate he always lives many months, ſometimes two years, before he turns into the Fly, now to be deſcrib'd.

MYRMELEO FORMICARUM.
THE ANT-EATER FLY.

Plate 5.

The ANTLERS are compos'd of twenty-four joints, and grow larger to the tip.

This is a large Fly, not ſwift in its motions, but fierce and deſtructive; even in a degree equal to that of the Reptile, from which it ſprings: it plays about the buſhes in the meadows of France and Italy, in the latter part of ſummer, and will ſeize on almoſt any thing it can catch.

Its HEAD is of a cheſnut brown.
The *Eyes* are vaſt, and green.
The *Antlers* are of a deep brown.
The *Feelers* are long, and duſky; there are four of them.
The *Jaws* are yellow, hard, and ſharp; and the two Tuſks are brown.

Its TRUNK is of a greyiſh brown, with a gilded variegation.
The *Scutcheon* is blueiſh.

Its BODY is of a pearly grey, deep, and not elegant.
The *Lines* or *Rings* are black.
The *Air-holes* are edg'd round with brown.

Its LEGS are ſhort, ſtrong, and ruddy, with long dark hairs.

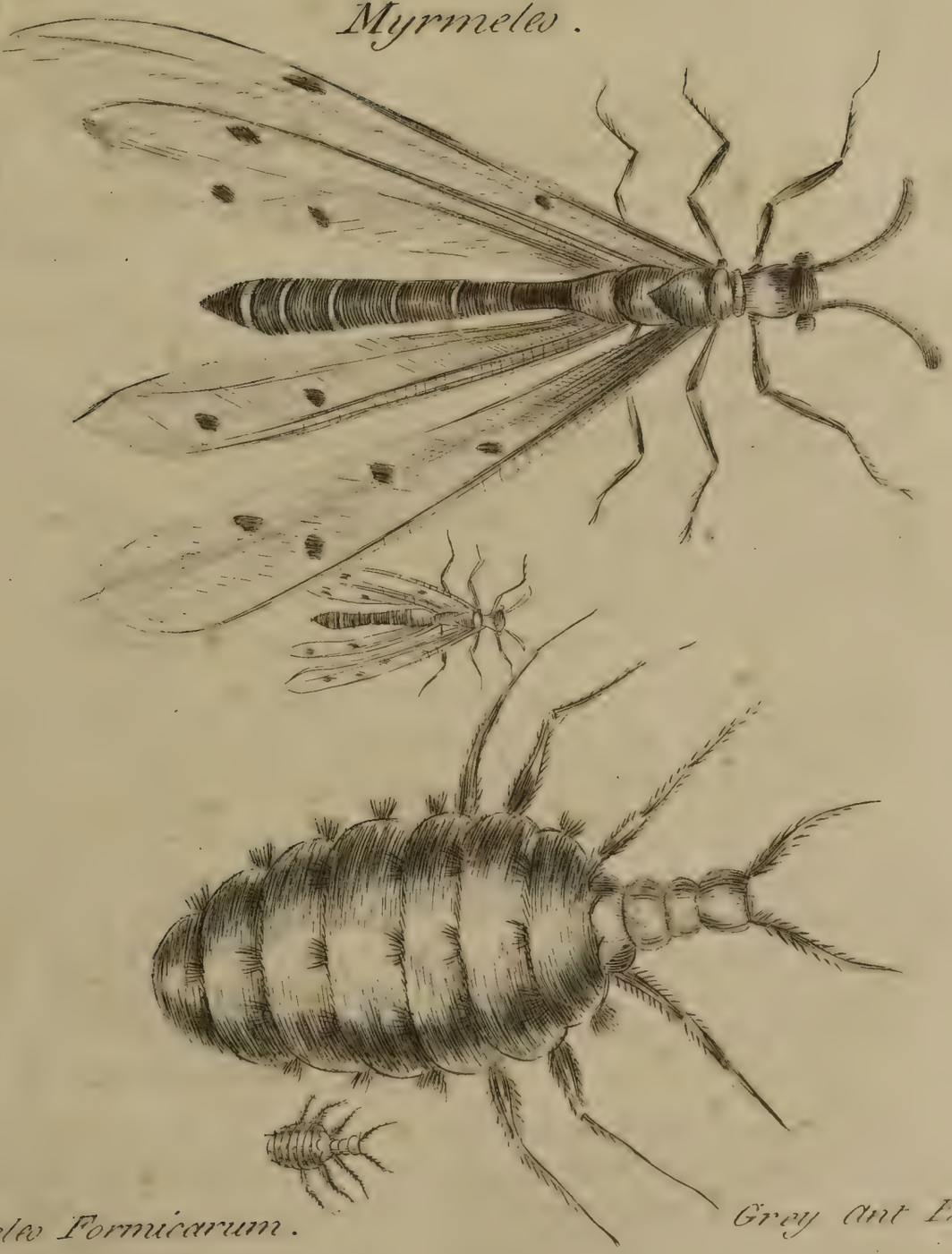
Its WINGS are grey; and in the particular Fly before me, there are four ſpots of a duſky brown upon each of the upper ones, and two on each of the under: I ſay, in this particular Fly, which is from Italy; for there are more, or fewer, or none, in thoſe from other places.

The Knippers at the Tail are horny, and cheſnut colour'd.

This is the Fly of the famous Formicaleo, the Myrmelea Formicarum of the lateſt writers.

GENUS

Myrmeleo.



Myrmeleo Formicarum.

Grey Ant Lister.

GENUS IV.

GALL FLY.

CYNIPS.

Plate 6.

Character of the Genus.

The MOUTH is form'd of oblong Jaws, and has no Trunk.

The WEAPON at the Tail is ſpiral: it is naturally hid; and only Females have it.

They have an ink in Norway, rude, and unciviliz'd, as the country in a great meaſure is, which excels that of all the world in colour, clearneſs, and permanency. Some letters, I had the honour to receive from the Biſhop of Bergen, gave me an opportunity of obſerving this; and an enquiry into its compoſition, produced an Hiſtory of the ſucceeding Fly; frequent in France and Germany, as well as there; and I think not unknown in England: but 'tis with caution we muſt aſcertain the Species of theſe leſſer animals. Colour has been taken in as an eſſential character, but it changes here.

Our oaks give food and lodging to a multitude of Inſects: I think there are not leſs than forty-ſeven creatures of this rank, perfectly diſtinct in ſpecies, and of many Genera, that live in, and on it.

We ſee upon the oak-leaves in our woods in June, round balls, as big as nutmegs, green, with a bluſh of red, and ſoft to the touch: theſe are the leaf galls with which the Norway ink is made; and we have nearly the ſame Fly that makes them. They ariſe from a wound made by that Inſect, who lays an egg there; and in their centre there is a ſmall cavity, within which the Worm lives, that, after a time, hatches into this Fly.

The common galls, with which the common ink is made, and which are alſo of ſo great uſe in dying, riſe from the young ſhoots of the oak, not from its leaves; and they are hard and woody. Theſe are more numerous; and as they fall with the leaves in Autumn, they might be collected eaſily in great quantity; and may perhaps be of value, by improving more than one article in Commerce.

1. THE OAK LEAF GALL FLY.

CYNIPS QUERCUS FOLII.

The ANTLERS are hoop'd, and have a thick extremity.
The TRUNK is bloated, and ſtreak'd.

This Inſect I received from Norway, where the oaks were in a manner covered with it, in the months of July, and part of Auguſt, 1768; and in our own oak-woods I have ſeen ſuch a Fly frequently; and found it, tho' differing a little in colour, perfectly the ſame in all its characters. It is a ſtrong, coarſe-made, and not very handſome Fly; and is ſlow and heavy in its motions: and is generally found ſitting on the under part of a leaf, with its wings ſpread out flat.

Its HEAD is of a ruſſet brown.
The *Eyes* are blue.
The *Antlers* are mottled, of black and cheſnut colour.
The *Feelers* are brown.
The *Jaws* are ſharp, jagg'd, and brown.

Its TRUNK is of a raven grey, very beautifully ſtreaked with white.

Its BODY is coal black.
The *Rings* dividing the Joints are brown.
The *Air-holes* are duſky.

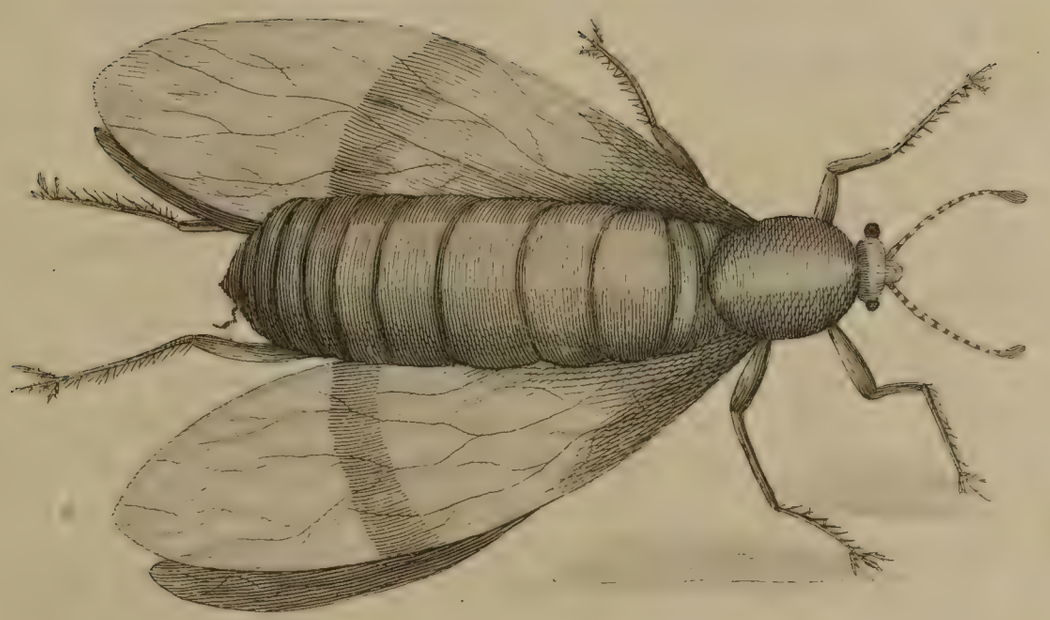
Its LEGS are grey, with ſtiff black hairs, and black toes; and the thigh is black.

Its WINGS are of a pale brown, with a tinge of olive-colour; the Veins on them are deep grey.

Its TAIL is perfectly black.
The *Sting* is cheſnut brown.

With us the Trunk and Body of this Fly are quite black; otherwiſe there is no difference between ſome I caught this year in Buſhy Park; and thoſe I had from Norway.

Cynips.



Cynips Quercus folii. Oak leaf Gall Fly.

GENUS V.

DAY-FLY.

PHRYGANEA.

Plate 7.

The MOUTH is oblong, and without Teeth.
There are no *Feelers*.
There are two large *Studs* upon the Head, juſt above the eyes.
The WINGS are carry'd ſtanding upwards, and are unequal in ſize.
The TAIL has briſtles annex'd to it.

The Day-Flies are an inoffenſive race; born to paſs thro' their little ſtage of being, the prey to a thouſand enemies; but hurtful to no creature: they live about waters, in which they breed; and in their Fly ſtate have ſo ſhort a term, that it has been the ſubject of ſeparate hiſtories, by Naturaliſts, and Emblems for moral writers. The name, Day-Fly, ariſes from their living in that ſtate but one day: but in many of the ſpecies, even that period is much longer than is allowed.

The particular kind firſt to be figured and deſcribed in this place, never burſts from its Reptile ſtate, till about ſix o'clock in a ſummer evening; and never lives to ſee the next ſun riſe.

Five hours complete its little ſpan of life; in the which time, if it eſcape the Fiſh, the Dragon-Flies, and Reed Sparrows, (for all are after it) it copulates with the Male; depoſits its impregnated eggs in the waters; and dies before the cold of midnight.

But 'tis not that theſe hours are all it lives; 'tis in theſe only it enjoys the air: but the Worm hatched from the egg of this Fly lives, and feeds heartily in the waters, enjoying a much longer date, and that in more ſecurity; for it covers its tender frame with a motley caſe of its own conſtructing; and gormandizes unſuſpected, and unſeen; for one, or ſometimes nearly for two years.

1. THE WHITE-WING DAY-FLY.

EPHEMERA CULICIFORMIS.

Plate 7.

The ANTLERS have a multitude of knotted joints, and grow ſmaller to the point.
The BRISTLES of the Tail are hard, and firm.

This is a ſwift-wing'd Fly, abundant about running waters, in the months of June and July; where it becomes the food of a multitude of fiſhes: many leap at it as it drops toward the water; and others watch the reeds and ruſhes near the ſhore, and take it with more eaſe as it is dropping its eggs. This was caught in July laſt, near Eſher.

Its HEAD is of a duſky brown.
The *Eyes* are green.
The *Studs* are jet black, and ſhine.
The *Antlers* are of a cheſnut brown.
The *Mouth* is a kind of amber-colour'd beak.

Its TRUNK is of a tawny brown, with a brighter ſpot in the middle.
The *Scutcheon* is nearly white.

Its BODY is of a dead brown.
The *Rings* are pale.

Its LEGS are of a greyiſh, or aſh colour.

The WINGS, tho' not decorated as the Moths, or Butterflies; yet have a peculiar and wonderful prettineſs: they are of a pearly white, mottled here and there, and clouded as it were with the ſame colour, only thicker, or leſs pure.

The TAIL is pale brown.
The *Briſtles* are ruddy.

Page 18

Ephemera.

Ephemera Culiciformis.

White Wing'd Day Fly.

2. ROCK DAY-FLY.

EPHEMERA RUPESTRIS.

Plate 8.

The ANTLERS have a multitude of close-connected joints, and grow all the way smaller to a point.

The BRISTLES at the Tail are short, and weak.

Nothing can be stranger than the history of this Fly, which came to my knowledge by an accident last year; and, I believe, has not been observed by any writer.

On a stone obelisk, erected before a house in London, to support the lamp, I observed several oblong, greyish tubes, or cases, running in various directions; some strait, and others a little bent. I should have supposed them the tubuli, or cases of Sea Worms, petrify'd, as is frequent in many kinds of stone; but that these obelisks carried very plainly the marks of the chissel; and the little tubules I observed were wrought over them; and therefore evidently had been formed after the stone was work'd.

The singularity of this, caused me to direct a servant to pick off some of them; which he attempted in vain: he found them as hard as the rest of the stone, and fixed to it with great firmness: with the help of a hammer, some few were at length got off; and I found nothing shelly in them; but that they were mere stony tubes, form'd of the matter of the obelisk, in small granules, cemented close.

In breaking several others, I at length found in some, the creature which had form'd them for its house and shelter: this was a little yellowish Worm, with a black head, and a number of small, short feet. It usually resided in the bottom of the tubule; but came out at pleasure.

On some cobwebs, about the upper part of the obelisk, I found, among other Insects, the remains of two or three Flies, seeming either of the Day-Fly, or Moth kind; but too imperfect for me to ascertain the Species.

Thus reſted the matter for that time; but my curioſity being rouſed by the ſtrangeneſs of the incident, I examined large maſſes of ſtone, wherever I ſaw them, this laſt year; and happening to be in Buckinghamſhire in July, I found the whole myſtery explained.

Several large ſtones that ſtood in water at their bottom, tho' dry enough above, were covered with grey, ſtony tubules of this kind; and about one of theſe maſſes, on the evening of the 18th of July, I found more than fifty, of the Fly, to the Worm of which they owed their origin. 'Tis a very pretty creature, and in all reſpects of the Day-Fly kind.

Its HEAD is hoary, and of a ſtrong fine green, with a black round ſpot on its centre, ſhining at the ſummit.
The *Eyes* are black as jet.
The *Studs* are brown.
The *Antlers* are ſcarlet, long, thruſt ſtrait forward, and uſually croſs'd.
The *Mouth* is duſky.

Its TRUNK is of a lovely green, and is join'd to the body by a kind of neck, which is alſo of a velvety green.
The *Back* is beautifully variegated with ſtreaks and dots of gold.
The *Scutcheon* is of a lighter green.

Its BODY is thick, and green, and is connected to the Trunk almoſt without a diviſion.

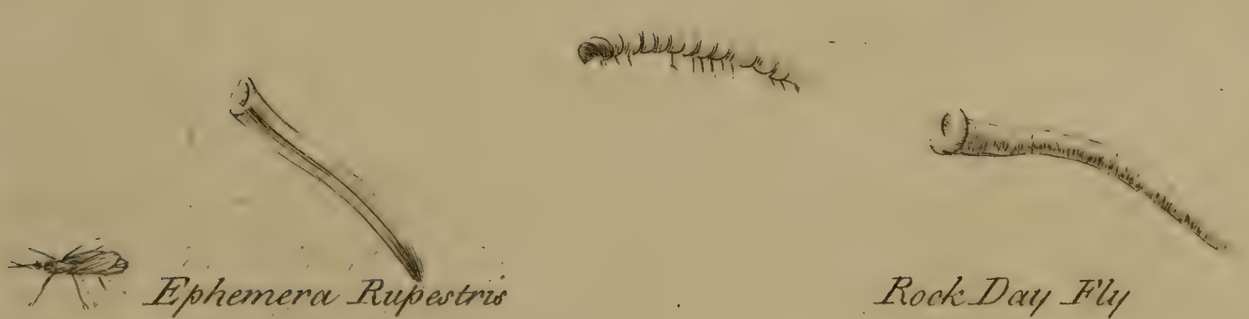
Its LEGS are of a pale brown.

Its WINGS of the ſame pearly grey with the preceding; but elegantly vein'd, and clouded with a pale blue, and a light brown.

The BRISTLES are amber-colour.

I believe this Fly lives no longer than one evening in its wing'd ſtate: the Females, among thoſe I ſaw, were very buſily depoſiting eggs in all the cracks and crevices of the ſtones. The Worms hatched from theſe, make the ſtone tubules for themſelves, and probably live in them one or two years.

Ephemera
2



Ephemera Rupestris

Rock Day Fly

INSECTS.

CLASS II.

Thoſe which have four feathery wings.

BY feathery wings, we underſtand ſuch as are form'd, in appearance, as of the feathers of birds: each wing conſiſting of only one ſuch feather; tho' ſometimes ſplit, or divided.

GENUS I.

CHINCH.

ALLUCITA.

Plate 9.

The ANTLERS are compos'd of a few oval joints; and the extreme one runs out into a point.

The TAIL is ſplit, and hairy.

The FEATHERS, which are plac'd as wings, conſiſt of jointed ribs, and thin flat plates ſet regularly on them.

The Chinches are a race of Inſects ſo extremely ſmall, that they have in a great meaſure eſcaped obſervation. Few of thoſe who have ſtudied theſe ſmall objects, have ſeen any of them; and from ſuch as have, very little of their nature is to be learn'd, for they have only caſually come before the eye: and thoſe microſcopes, by the aſſiſtance of which they have been examined, and figured here, have not been known till lately.

The creatures in the Inſect world, to which the Chinches approach the neareſt, are the feather-wing Moths; but from theſe they differ abundantly in the ſtructure of their Antlers, and the ſhape of their body, their motions, and peculiar formation of their Tails. Thoſe Moths have been called Phalenæ Alucitæ; and the latter term therefore alone ſeems the moſt familiar and intelligible name for theſe.

The feathers which compoſe, or rather which are the wings of the Chinches, tho' they very much reſemble the plumes of birds in appearance, are in reality very different, and have nothing truly feathery in them. They are compos'd of a hollow jointed rib, not unlike ſome of the Corallines; and the hairs, or plumes, as they ſeem, which riſe from them, are flat, thin, conic ſcales.

1. THE STRAW-COLOUR'D CHINCH.

ALLUCITA PALLIDA.

Each wing is compoſed of one diſtinct undivided feather.

Plate 9.

This is a creature very ſtrange in its nature, and hiſtory; and which once came as ſtrangely before me. A ſtudious gentleman, very ſubject to the head-ach, which he, and his phyſician, both attributed to great attention; ſneezing one day with violence, as he was writing, ſaw ſome atoms a moment afterwards upon a ſheet of white paper that lay upon his table; and they plainly moved: he doubled up the paper, and brought it to me: when we laid a parcel of theſe moving particles before the lucernal microſcope, they appeared of the ſize and figure repreſented at Plate 9; and were in continual motion; vibrating their Antlers, ſhaking their Wings, and turning up their Tail to their Heads, in the manner of Earwigs, but with an incredible ſwiftneſs.

'Twas palpable they had been diſcharged from his noſe; and 'tis very eaſy to ſee whence they were thrown, and to underſtand how they might have cauſed intolerable pain, while they were thus raiſing and moving their irritating hairs, and feathers, upon a part where the very ſubſtance of the brain is almoſt naked.

I had ſeen the ſame Species inhabiting the Flowers of the Plant Mignonette; and on aſking, found he had that Plant in his chamber.

The HEAD of this creature is lemon-colour'd.
Its *Eyes* are of a delicate blue.
The *Studs* over them deep black.
Its *Antlers* are of the paleſt brown, but ruddy at the baſe of each Joint.
The *Feelers* are pale, and ſmall.

Its TRUNK is of a pale ſtraw-colour.
The *Scutcheon* has a tint of greeniſh.

Its BODY is very pale ſtraw-colour.
The *Rings* dividing it are whitiſh.

Its LEGS are pale brown, but deeper at the joints.

Its WINGS are whitiſh, with a duſk of brown.

Its TAIL is amber-colour'd.

Allucita

Allucita Pallida

The Strawcolour'd Chinch

2. THE TAWNY CHINCH.

ALLUCITA FULVA.

Plate 10.

Each wing is compoſed of two feathers, riſing from a ſimple baſe.

This little creature lives in the hollows of the Flowers of Plants, as the preceding; and ſeems calculated to do at leaſt as much miſchief, being fully as ſmall; more covered with Hairs, or ſhort Briſtles; and to all appearance, both as to its ſtructure, and motions, able to drive them into the tender membranes with more force: a bigger bodied, and more robuſt creature.

It is a wanderer, and lives in a manner at large in gardens: 'tis fondeſt of the ſweeteſt Flowers: the Damaſk-Roſe is often full of them, and the ſtock July-Flower, and Wall-Flower; nor does it diſdain the Lupine, and the Pea.

The characters, and ſtructure of the Chinches, are in no Species ſeen more diſtinctly than in this.

Its HEAD is of a dull yellowiſh brown.
The *Eyes* are large, and of a fiery red.
The *Antlers* are firm, elegantly jointed, a little hairy, and very ſharp at the points; and they are of a pale brown.
The *Feelers* are ſhort, and duſky.

Its TRUNK is brown, covered with pale hairs, and variegated with a dead yellow.
The *Corcelet* is paler.

Its BODY is of a tawny brown, divided by duſky rings, and covered thick with ſhort, firm, whitiſh hairs, which it can raiſe at pleaſure.

Its LEGS are of a duſky brown, ſtrong jointed, and have forked, hard, horny toes, and ſome very ſtiff hairs upon them.

It

Its WINGS are of a pale duſky yellow; the rib of them is ſeen beautifully jointed; and is palpably hollow.

The Scales, which make what are call'd their hairs, or feathery ſubſtance, are very numerous, narrow, and ſharp, both at the edges, and the point; and they make a great appearance, becauſe, each being compos'd of two feathers, the creature ſeems, in compariſon with the preceding, to have four wings upon each ſide.

The creature has, when living, all the motions of the preceding kind, but ſtronger; as its Body ſeems more muſcular: and the power it has of raiſing its Briſtles, as the Porcupine, muſt add greatly to the irritation, when it is got into a tender part.

Whether, and how far, head-achs are to be traced from theſe little creatures, is a ſubject yet for more enquiry; but 'tis worth the pains. Many have this pain from the ſmell of Flowers. Some have been found dead, with quantities of violets, and other Flowers, in their chamber. Phyſicians have attributed theſe deaths to the powerful odour of thoſe Flowers; but that they ſhould be owing to theſe creatures, is much more probable.

Whether they do, or do not, ever fly far from the Plants they inhabit, I have not yet found; but in the ſtillneſs of the night, it would not be ſtrange if they ſhould: and that they hover round them I have ſeen: for placing a ſtrong light, and a great convex glaſs, near a pot with a growing Lupine, in a dark chamber, I have diſcovered the air, all about the tops of the Plant, in a manner filled with them, moving like motes in a ſun-beam.

2

Allucita fulva. *The Tawny Chinch.*

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